Installation Instructions

for use by heating contractor

Direct Vent Systems

Part No. Z005 875 (FDVS-4)

for Vitorond 100 boilers equipped with Hydrostat

Safety and Installation Requirements

Please ensure that these instructions are read and understood before starting any service work. Failure to comply with these instructions may cause product/property damage, severe personal injury and/or loss of life.

Working on the equipment

The installation, adjustment, service and maintenance of this product must be performed by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water boilers. There are no user serviceable parts on the boiler, burner or control.

Ensure that main power to the equipment being serviced is off.

Ensure that the main fuel supply valve to the boiler is closed.

Take precautions to avoid accidental activation of power or fuel during service work.

Do not perform service work on any component part without ensuring safe operation of the heating system. When replacing parts, use original Viessmann or Viessmann approved replacement parts.

Refer to the Installation Instructions of other referenced components.

General Information

Standard installation

Boiler model	VR1	-22	-27	-33
Rear	in.	6	6	6
	(mm)	(150)	(150)	(150)
Sides	in.	0	0	0
	(mm)	0	0	0
Flue	in.	1	1	1
	(mm)	(25)	(25)	(25)
Floor	Combustibles			

Alcove installation

Boiler model	VR1	-22	-27	-33
Rear	in.	6	6	6
	(mm)	(150)	(150)	(150)
Sides	in.	0	0	0
	(mm)	0	0	0
Flue	in.	1	1	1
	(mm)	(25)	(25)	(25)
Top	in.	6	6	6
	(mm)	(150)	(150)	(150)
Floor	Combustibles			

The insulated oil direct vent system is rated for a 1″ clearance to combustibles.

IMPORTANT

Advise owner to keep direct vent termination and air intake free of debris, snow and ice.

⚠ WARNING

Viessmann will not assume any responsibility for possible effects of an obstructed air intake or exhaust termination.

Note: Surface discoloration on the outside of the building may occur if the burner is not properly adjusted. Viessmann will not accept any responsibility for such discoloration.

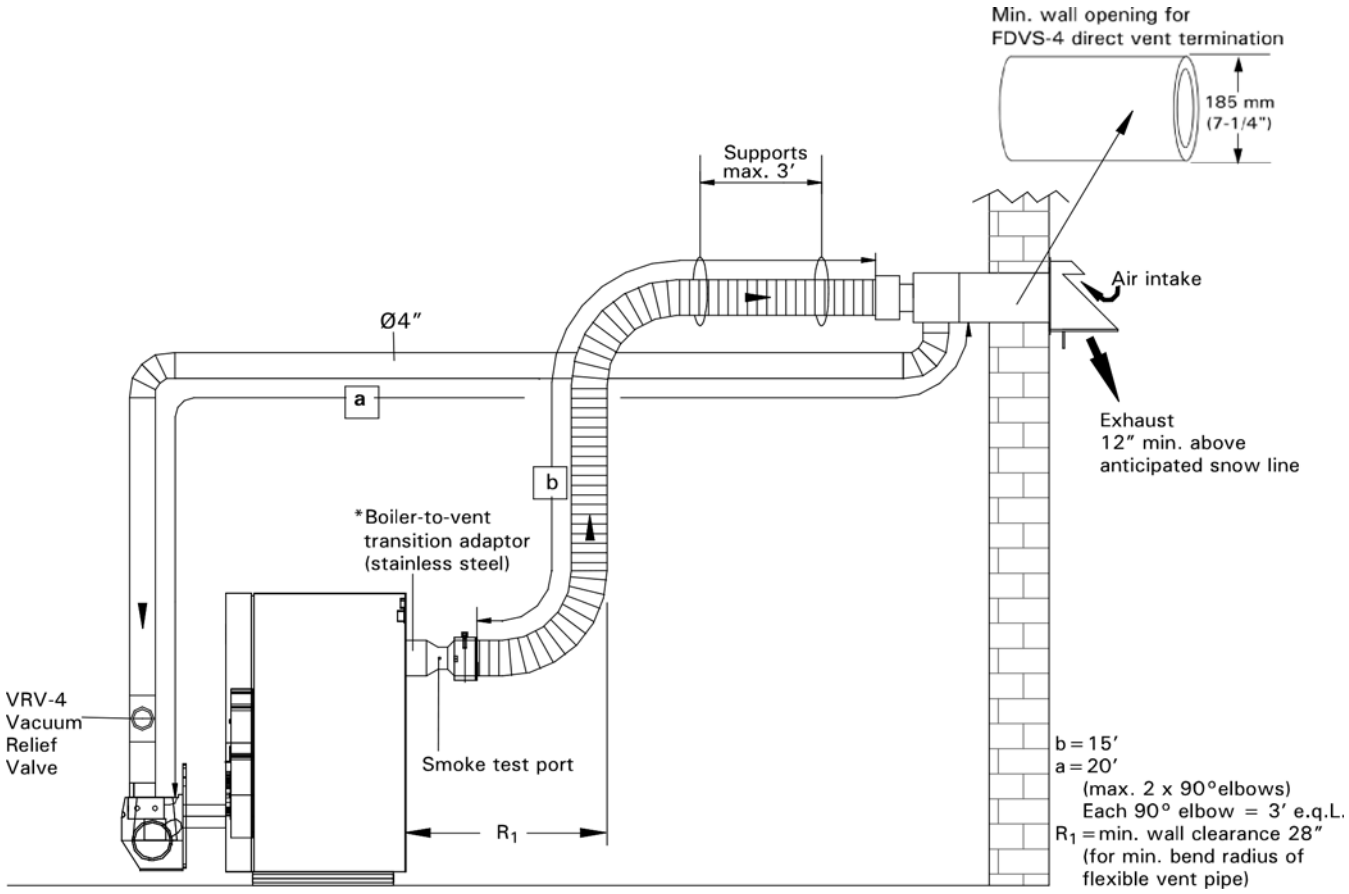
Note: Direct Vent exhaust system operates under a positive pressure developed by the burner. Make sure all vent connections and observation port on the boiler are sealed air-tight by tightening screws and using high temperature silicone sealant if necessary.

Note: The vent components must be supplied without any alteration except for the length of the flex pipe to be cut to the desired length.

Installation of Insulated Stainless Steel Flexible Oil Vent

In addition to the following instructions, also consult Field Controls Direct Vent System manual for detailed instructions on how to install the venting system.

Refer to Vitorond 100 Installation and Service Instructions.



*The direct vent kit includes a Viessmann-specific stainless steel boiler-to-vent transition adaptor.

Use a 4" to 3" reducer (not supplied) to connect an intake pipe to the Riello burner.

If no air intake is required a = 0 then provide combustion air supply to mechanical room where the burner is installed. The burner requires fresh air for safe operation and must be installed in a mechanical room where there are provisions for adequate combustion and ventilation air.

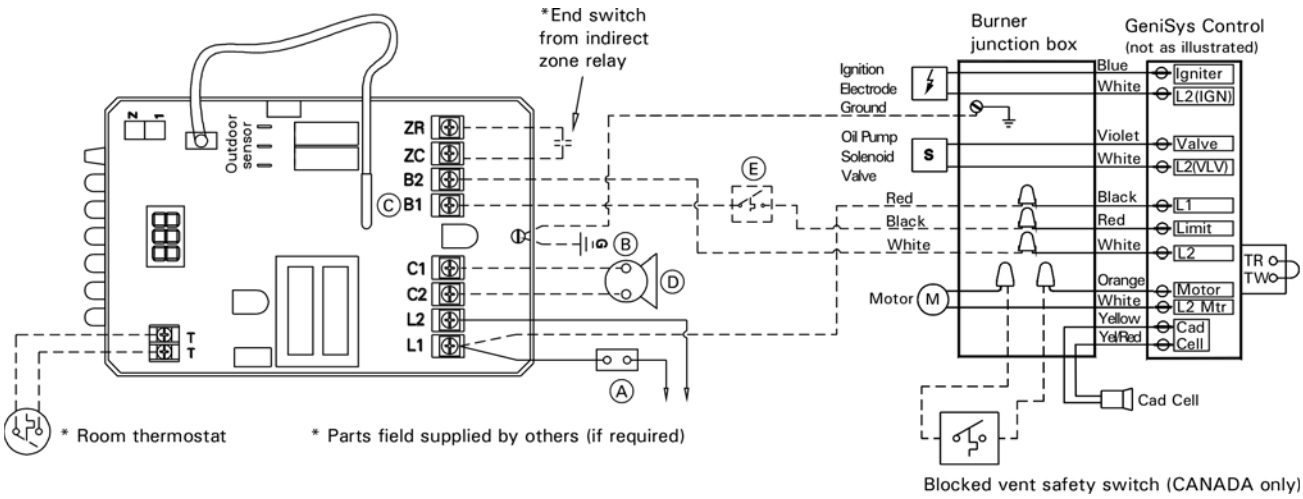
Avoid dips in the venting system when using the flexible insulated stainless steel oil vent. The direct vent kit includes a VRV-4 vacuum relief valve which must be installed in the air intake pipe as close as possible to the burner when using a Beckett burner.

IMPORTANT

Do not install the regular galvanized vent pipe adaptor shipped with the boiler. This galvanized vent pipe adaptor is intended for chimney venting application and therefore must be discarded in a direct vent application.

Burner Set-up (Beckett NX burner with GeniSys control)

Wiring diagram (Hydrostat 3250-Plus)



Legend

Ⓐ Power supply, provide disconnect means and overload protection as required.
Ⓑ Control case must be connected to earth ground. Use grounding provided.
Ⓒ B1 is a in. tab terminal.
Ⓓ Circulator
Ⓔ Temperature limit control (when required by local jurisdiction)

WARNING

Ensure that the burner cycles ON and OFF on proper call for heat before leaving the job site. Failure to do so may lead to boiler runaway situation, which may lead to property damage, personal injury or death.

CAUTION

A field supplied manual reset high limit control must be installed at the outlet pipe of the boiler to interrupt burner operation should the factory supplied high limit control fail. This field supplied high limit control must be set 20°F (7°C) above the setting of the factory supplied high limit control. The setting of this field supplied high limit control must never be greater than 220°F (104°C).

Note: Used with standard venting and direct vent systems.

Installations must follow these codes and requirements:
- National Electrical Code, ANSI/NFPA 70, latest edition and any additional national, state or local codes.
- In Canada, CSA C22.1 Canadian Electrical Code Part 1 and any local codes.
- Wiring must be N.E.C. Class 1. If original wire as supplied with boiler must be replaced, type 105°C wire or equivalent must be used. Supply wiring to boiler and additional control wiring must be 14 ga. or heavier.
- Provide electrical ground at boiler as required by codes.

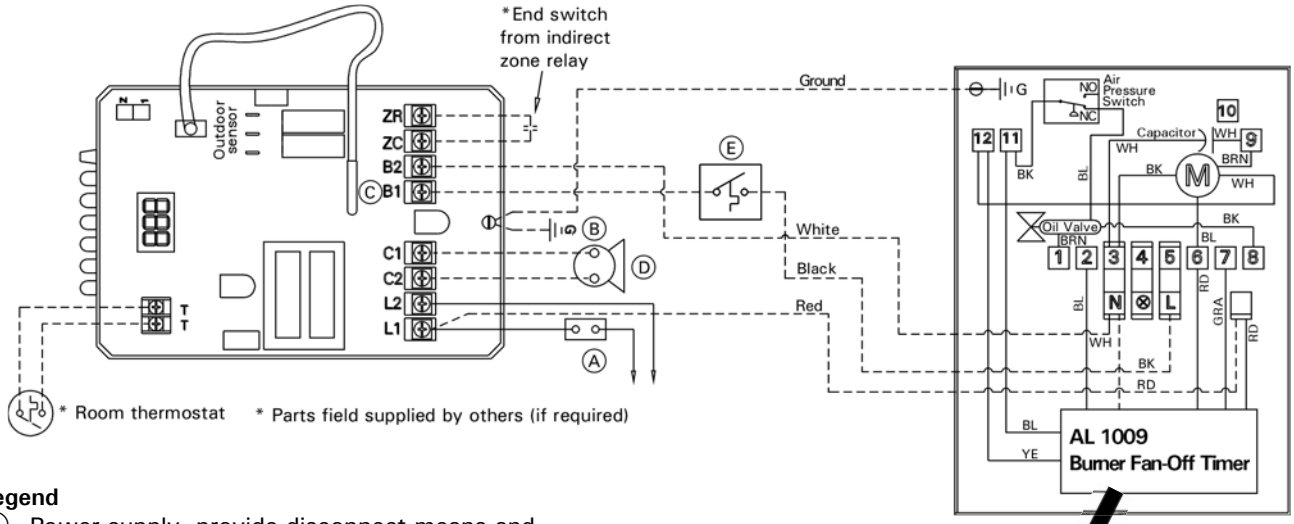
WARNING

Electric shock hazard. Can cause severe personal injury or loss of life if power source, including service switch on boiler, is not disconnected before installing or servicing.

- All field supplied nominal 120 VAC voltage wiring must be sheathed in a flexible metal conduit.
- Disconnect means, overload protection and low water cut-off must be provided as required by local codes.
- Connect incoming line voltage HOT (L1) wire to terminal L1, and N to terminal L2 of the Hydrostat 3250-*Plus* control (see wiring diagram).

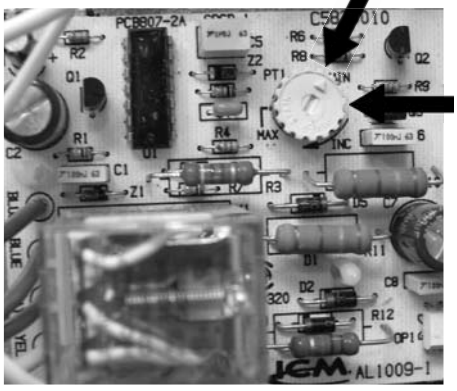
Burner Set-up (Riello burner and control)

Wiring diagram (Hydrostat 3250-*Plus*)



Legend

Ⓐ Power supply, provide disconnect means and overload protection as required.
Ⓑ Control case must be connected to earth ground. Use grounding provided.
Ⓒ B1 is a in. tab terminal.
Ⓓ Circulator
Ⓔ Temperature limit control (when required by local jurisdiction)



Post-purge timer setting in conjunction with Hydrostat 3250-*Plus.*

WARNING

Ensure that the burner cycles ON and OFF on proper call for heat before leaving the job site. Failure to do so may lead to boiler runaway situation, which may lead to property damage, personal injury or death.

CAUTION

A field supplied manual reset high limit control must be installed at the outlet pipe of the boiler to interrupt burner operation should the factory supplied high limit control fail. This field supplied high limit control must be set 20°F (7°C) above the setting of the factory supplied high limit control. The setting of this field supplied high limit control must never be greater than 220°F (104°C).

- All field supplied nominal 120 VAC voltage wiring must be sheathed in a flexible metal conduit.
- Disconnect means, overload protection and low water cut-off must be provided as required by local codes.
- Connect incoming line voltage HOT (L1) wire to terminal L1, and N to terminal L2 of the Hydrostat 3250-*Plus* control (see wiring diagram).

Note: Used with direct vent systems only.

Installations must follow these codes and requirements:

- National Electrical Code, ANSI/NFPA 70, latest edition and any additional national, state or local codes.
- In Canada, CSA C22.1 Canadian Electrical Code Part 1 and any local codes.
- Wiring must be N.E.C. Class 1. If original wire as supplied with boiler must be replaced, type 105°C wire or equivalent must be used. Supply wiring to boiler and additional control wiring must be 14 ga. or heavier.
- Provide electrical ground at boiler as required by codes.

WARNING

Electric shock hazard. Can cause severe personal injury or loss of life if power source, including service switch on boiler, is not disconnected before installing or servicing.

Beckett Burner Calibration

Beckett burner (chimney and direct vent*1 application)

Boiler Model	Model No.	VR1-22*	VR1-27*	VR1-33*
Burner model	Beckett	NX-VI 701	NX-VI 702	NX-VI 703
Fuel type	oil	No. 2 fuel oil		
Pump pressure	psig (kPa)	175 (1207)	175 (1207)	175 (1207)
Oil nozzle	Danfoss	n.a.	0.60x60°AS	n.a.
	Delavan	0.50x60°B	n.a.	0.75x60°A/W
	Hago	0.50x60°B	0.60x60°B	n.a.
Oil nozzle flow rate	GPH@psig	0.65@175	0.75@175	1.00@175
Air tube length	inches (mm)	7 (178)	7 (178)	7 (178)
Air tube insertion	inches (mm)	3¼ (83)	3¼ (83)	3⅝ (92)
Air tube combination		NX70LP	NX70LP	NX70LJ
Head type		6-Slot	6-Slot	9-Slot
Head setting		2.00	2.50	3.25
Air setting		See head setting		
Static plate		n.a.		
Baffle		n.a.		
Fuel pump		21844	21844	21844
Flange		32073	32073	32073

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Riello Burner Calibration

Riello burner (direct vent application)

Boiler Model	Model No.	VR1-22	VR1-27*1	VR1-33
Burner model	Riello 40 Series	BF3	BF3*1	BF5
Fuel type	oil	No. 2 fuel oil		
Pump pressure	psig (kPa)	175 (1207)	175 (1207)	140 (965)
Oil nozzle	Danfoss	n.a.	n.a.	n.a.
	Delavan	0.50x60°SS	0.60x60°W*3	0.85x60°W*2
	Hago	n.a.	n.a.	n.a.
Oil nozzle flow rate	GPH@psig	0.65@175	0.75@175	1.00@140
Air tube length	inches (mm)	7 (178)	7 (178)	$6^{5}/_{16}$ (160)
Air tube insertion	inches (mm)	4⅝ (118)	4⅝ (118)	4¼ (108)
Turbulator setting		0.0	1.0	1.0
Air gate setting		3.7	5.0	4.0

IMPORTANT

*1 For VR1-27 boiler, replace installed nozzle with nozzle packaged with Riello burner.
*2 Factory-installed nozzle.
*3 Nozzles must be installed by installer.

Note: Riello oil burners are factory set for Vitorond 100, VR1-22, and -33 boilers and should only require minor adjustments. Install appropriate nozzle and set the burner for model VR1-27.

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Technical information subject to change without notice.

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